A.4.8 SWMU 36

Description

SWMU 36 is the area of a former oil/water separator located between the EYB and the Arthur Kill in the East Yard. The oil/water separator was an earthen impoundment, approximately 200 feet long by 120 feet wide with an associated feeder ditch along the south side, which was present from 1950 to approximately 1974. The oil/water separator handled stormwater, process water, petroleum products and oil/water separator sludge. Pre-RFI sampling was conducted by DRAI within this unit in 1991. A pre-RFI soil sample collected in boring B-5 from 11.5 to 12.0 feet bgs detected VOCs, SVOCs and metals above the RFI SAP Action Levels.

A total of six borings, 12 soil samples, and one monitoring well have been used to characterize SWMU 36, as shown on Figure A.4.6 and summarized on Table A.4.6. In addition, relevant data from pre-RFI investigations are also included on Table A.4.6. All of the soil samples were analyzed for VOCs, SVOCs and metals. One soil sample was also analyzed for SPLP metals and physical characteristics.[1] Two hydropunch groundwater samples were analyzed for VOCs, SVOCs and metals during the 1st-Phase Groundwater Investigation. A groundwater sample from MW-150, which was installed during the Full RFI, was analyzed for VOCs, SVOCs, metals and water quality parameters.

Soils

The following table summarizes the number of samples where soil delineation criteria were exceeded.

Constituents of Concern	Surface Soils (0 to 2 ft)	Fill Material (>2 ft)	Native Soils	Total
Benzene	0/4	0/8	0/0	0/12
Other VOCs	0/4	0/8	0/0	0/12
Benzo(a)pyrene	1/4	0/8	0/0	1/12
Other SVOCs	1/4	0/8	0/0	1/12
Lead	1/4	0/8	0/0	1/12
Other TAL Metals[a]	1/4	08	0/0	1/12

[a]Totals do not include naturally-occurring metal compounds in excess of the delineation criteria (Al, Ca, Fe, Mg, Mn, K and Na).

Surface Soil (0 to 2 feet bgs)

No visibly-impacted soils were observed in any of the six soil borings installed to characterize SWMU 36, although a low PID reading (12 ppm) was noted from 1.5 to 2

[1]Physical characteristics specified in Appendix A, Task IV of Module III of the HWSA Permit included saturated and unsaturated permeability tests, moisture content, relative permeability, bulk density, porosity, soil sorptive capacity, CEC, TOC, pH, Eh and grain size distribution.

feet bgs at S0854. Of the four surface soil samples that were collected from SWMU 36, only one sample (S0854A4) had exceedances of COCs other than naturally-occurring iron. This surface soil sample (1.5 to 2 feet bgs) contained benzo(a)pyrene (2.5 mg/kg) and several other PAHs, arsenic (26.7 mg/kg), and lead (425 mg/kg). Arsenic (26.7 mg/kg) was detected at a concentration within the normal range for soils, particularly glauconitic soils in the Coastal plain (NJDEP, 2003).

Subsurface Fill Material (>2 feet bgs)

The fill layer is approximately 30 feet thick in the vicinity of SWMU 36. A petroleum sheen, odor and elevated PID readings were noted at a depth of 6.5 to 9.5 feet bgs in only one of the six soil borings (S1421) used to characterize this SWMU. A petroleum sheen and odor were noted in the S1421 boring; however, low concentrations of VOCs and SVOCs detected in the soil sample from the potentially impacted zone were below the applicable delineation criteria, and thus any potential soil impacts have been vertically delineated.

Native Material

Silt and clay were noted at depths ranging from approximately 27.5 feet to 32 feet bgs at SWMU 36. No native soil samples were collected because there were no apparent impacts to the native material. Furthermore, all of the deeper soil samples collected in the fill material contained no COCs above the applicable delineation criteria.

Groundwater

Monitoring well MW-150 was installed next to HP0015, which was one of the two unfiltered groundwater samples collected from a hydropunch during the 1st-Phase Groundwater Investigation that contained elevated metals concentrations The groundwater sample collected from this well (MW-150) in October 2002 contained no COCs above the applicable delineation criteria.

Surface Water/Sediment

Surface water (SW 14) and sediment samples (SED 14) were collected in the Arthur Kill, immediately east of SWMU 36, and analyzed for VOCs, SVOCs and metals. As discussed more fully in Section 9 of the RFI Report, PAHs and metals were the only constituents detected in the sediment sample at concentrations greater than the sediment screening criteria, and copper was detected in the unfiltered surface water sample (4.41J µg/L). Given that these compounds were not detected above the applicable delineation criteria in soils or groundwater samples collected from SWMU 36, it is unlikely that SWMU 36 is adversely impacting the Arthur Kill.

Summary

With the exception of naturally-occurring iron, several PAHs, arsenic and lead were the only constituents detected at SWMU 36 above their respective delineation criteria. These constituents were detected in only one of the four surface soil samples collected from this SWMU. Based on the analytical results from MW-150 and the surface water/sediment data from SW/SED 14, SWMU 36 does not appear to be adversely impacting groundwater or the Arthur Kill. Nonetheless, because of the presence of PAHs and metals above the applicable delineation criteria at one location, the use of engineered barriers/deed restrictions at SWMU 36 will be evaluated further in the CMS.